



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/701,658  | 11/30/2000  | Carsten Bingel       | 732/980(26          | 5708             |
| 26474   | 7590        | 04/01/2005           | EXAMINER            |                  |
| NOVAK DRUCE DELUCA & QUIGG, LLP<br>1300 EYE STREET NW<br>SUITE 400 EAST<br>WASHINGTON, DC 20036 |             |                      | LEE, RIP A          |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 1713                |                  |

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

4D

|                              |                               |                               |  |
|------------------------------|-------------------------------|-------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>09/701,658 | Applicant(s)<br>BINGEL ET AL. |  |
|                              | Examiner<br>Rip A. Lee        | Art Unit<br>1713              |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on November 18, 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-30, 33, 36-38 is/are rejected.
- 7) ☒ Claim(s) 31, 32, 34, 35, 38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action follows a request for continued examination (RCE) under 37 § C.F.R. 1.114, filed on November 18, 2004. Claims 16-38 are open for prosecution.

#### *Claim Objections*

1. Claim 38 is objected to because of the following informalities: The claim, as written, can not depend from claim 33 because the latter claim is not drawn to a catalyst. It appears that the claim should depend from claim 37 instead. Should this indeed be the case, it is noted that the catalyst of claim 37 *necessarily* contains a cocatalyst component. It is well settled that use of a cocatalyst is not optional in the context of olefin polymerizations. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 16-19, 21-25, 27, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 5,171,799 (Kioka *et al.*).

The compound ethylenebis(indenyl)zirconium phenoxy monochloride is disclosed in column 13, line 9.

*vi*

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

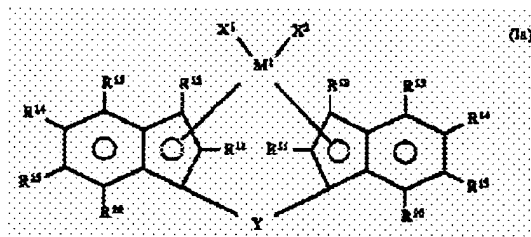
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 16-19, 21-25, 27-30, 33 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 5,795,838 (Tsutsui *et al.*).

Claim 14 of Tsutsui *et al.* discloses transition metal complexes having formulae labeled as (Ia), (Ib), and (Ic). Example (Ia) is shown below.



It is apparent that the compound contains the requisite bridged, *bis*(indenyl) ligand set.

According to the claim, X<sup>1</sup> and X<sup>2</sup> may be the same or different from each other and are each a

hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a hydrogen atom, or a halogen atom. In structure (Ic), the ligand framework has been extended to benzo[*e*]indenyl ligands, and the term "oxygen-containing group" is elucidated. It is a C<sub>6</sub>-C<sub>10</sub> aryloxy group (col. 58, line 40). The reference does not show examples with compounds with X<sup>1</sup> as a halogen and X<sup>2</sup> as an oxygen-containing, aryloxy group. However, it would be obvious to one having ordinary skill in the art to arrive at the compound of present claims 16 and 22 because Tsutsui *et al.* clearly states that X<sup>1</sup> and X<sup>2</sup> may be different from each other, and because the reference adequately discloses use of both types of ligands. One would have expected such an embodiment to result in a useful catalyst precursor since it lies within the general disclosure of the prior art.

The remaining claims describe meaningful developments of the instant invention, and the subject matter of these claims is rendered obvious over the teachings in Tsutsui *et al.* It is obvious to the skilled artisan that a C<sub>6</sub> aryloxy group is equivalent to a phenoxy group. Use of a dimethylsilylene (Me<sub>2</sub>Si) bridging group is prevalent throughout the document (see the extensive list of compounds spanning column 27 to column 33). Use of (Me<sub>2</sub>Si)*bis*(2-methylindenyl) and (Me<sub>2</sub>Si)*bis*(2-methyl-4,5-benzoindenyl) ligand sets is obvious because this particular substitution pattern is disclosed in the text (col. 33, line 59 and col. 36, line 35). Figure 3 shows that the transition metal is a group 4 metal. Polymerization is performed with a catalyst comprised of the inventive metal complexes, a fine particle carrier and activator.

7. Claims 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 5,795,838 (Tsutsui *et al.*) in view of Repo *et al.* (*J. Organomet. Chem.*, 1997).

The discussion of the disclosures of the prior art from the previous paragraph of this office action is incorporated here by reference. Tsutsui *et al.* discloses the use of a bridged, *bis*(indenyl) based metallocenes containing one C<sub>6</sub>-C<sub>10</sub> aryloxy group, however, the references do not show examples of the aryloxy group. Repo *et al.* sheds light on the identity of said aryloxy group. The inventors teach the synthesis of monohalide zirconocene compounds containing 2,6-di-*t*-butylphenoxy and 2,6-diisopropylphenoxy ligands and their use as olefin polymerization catalyst components. Thus, one having ordinary skill in the art, having both references at hand, would have found it obvious to use the aryloxy groups disclosed in Repo *et al.*, thereby arriving at the subject matter of the instant claims, and one with ordinary skill in the art would have expected these compounds to be useful as catalyst precursors.

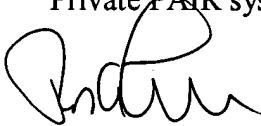
#### ***Allowable Subject Matter***

8. Claims 31, 32, 34, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The subject matter of claims 31 and 32 are not taught or made obvious based on the teachings of the prior art.

Art Unit: 1713

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



ral

March 29, 2005